

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated July 1, 2007. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

As outlined above, claims 1-8 and 10-12 stand for consideration in this application, wherein claims 1 and 8 are being amended. In addition, new claim 12 is hereby submitted for consideration.

All amendments to the application are fully supported therein, including page 28, lines 3-23, page 4, line 11 – page 6, line 2 of the specification and Fig. 9. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejections

35 U.S.C. §103(a) Rejections

Each of claims 1-8 and 11 was rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Kaise et al. (U.S. Patent No. 6,483,495) in view of Yamazaki et al. (U.S. Patent No. 7,173,282) and further in view of Yamada (U.S. Publication No. 2002/0158298). These rejections are respectfully traversed for the reasons set forth below.

Claim 1

Claim 1 as amended recites an image display device having an active matrix substrate provided with a pixel region having a plurality of pixels arranged in a matrix configuration, and a drive circuit region disposed outside of said pixel region for supplying drive signals to said plurality of pixels via interconnection lines, wherein said drive circuit region comprises a plurality of stages of circuit sections successively processing an externally supplied display signal to produce a drive signal to be supplied to said pixel region, each of said plurality of stages of circuit sections having a different function, and said plurality of stages of circuit sections includes a shift register, a digital-analog converter, a buffer circuit, and a sampling circuit, wherein active elements in each of said shift register, said digital-analog converter,

and said buffer circuit use roughly-band-shaped-crystal silicon films having grain boundaries as channels of said active elements, each of the grain boundaries of the roughly-band-shaped-crystal silicon films being continuous in generally one direction, and said active elements in said shift register, said digital-analog converter, and said buffer circuit have a direction of movement of carriers therein in a direction of said grain boundaries, and wherein active elements in said sampling circuit use granular polysilicon films having loop-like grain boundaries as channels of said active elements.

An image display device as recited in claim 1 has the following features: (1) active elements in each of a shift register, a digital-analog converter, and a buffer circuit use roughly-band-shaped-crystal silicon films having grain boundaries as channels of the active elements, and each of the grain boundaries is continuous in generally one direction, and the active elements in the shift register, the digital-analog converter, and the buffer circuit have a direction of movement of carriers therein in a direction of the grain boundaries, and (2) active elements in the sampling circuit use granular polysilicon films having loop-like grain boundaries as channels of the active elements. The feature (1) is for operating the active elements in a shift register, a digital-analog converter and a buffer circuit at a high speed. The feature (2) is for maintaining resistance of the active elements in a sampling circuit against a high voltage, because the active elements in the sampling circuit is not required to operate at a high speed.

In contrast, Kaise says nothing about grain boundaries of films as channels for active elements in a shift register, a digital-analog converter and a buffer circuit and active elements in a sampling circuit. Clearly, Kaise cannot and does not show or suggest the above-mentioned features (1) and (2) as recited in claim 1.

The secondary reference of Yamazaki merely shows a manufacturing process of a TFT in Figs. 1A-1D and a crystal growth which proceeds parallel with a substrate in Fig. 9 (col. 6, line 23 – col. 8, line 25). However, Yamazaki says nothing about grain boundaries of films as channels for active elements in a shift register, a digital-analog converter and a buffer circuit and active elements in a sampling circuit. Clearly, Yamazaki cannot and does not show or suggest the above-mentioned features (1) and (2) as recited in claim 1. Even more, the secondary reference of Yamada fails to provide any disclosure, teaching or suggestion that makes up for the deficiencies in the combination of Kaise and Yamazaki. Therefore, at the time the invention was made, one of ordinary skill in the art could not and would not

achieve all the features as recited in claim 1 by combining Kaise, Yamazaki, and Yamada. Accordingly, claim 1 is not obvious in view of all the prior art cited.

Claims 2-8, 10-12

As to dependent claims 2-8 and 10-12, the arguments set forth above with respect to independent claim 1 are equally applicable here. The corresponding base claim being allowable, claims 2-8 and 10-12 must also be allowable.

Conclusion

In light of the Amendments and Remarks, Applicants respectfully request early and favorable action with regard to the present application, and a Notice of Allowance for all pending claims is earnestly solicited.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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